File "I" IN O/A ges
E.K.

17 April 1963

Dear John,

As you know, we are preparing an unsolicited proposal describing equipment that could be used in the I vehicle. The proposal itself will not be ready for approximately ten days, but this letter will describe our general approach as a guide for your consideration during your present planning activity.

First and foremost, the approach is based on experience gained in the O program. Our goal in this proposal is a configuration that would be useful not only in the I vehicle, but also as a follow-on improvement in the O program. As a result we have chosen sizes, weights, concepts, and designs that with minimum modification would be appropriate for either application. The primary approach is of course for I, and some modifications would be required to adapt to the differing thermal and operational problems of O.

To minimize the development time, we are suggesting use of the Pacific Optical 24-inch Paxoramic lens. This is an existing design produced for WADD. We have tested the lens and found it to have excellent quality. The on axis resolution is comparable to our J-241 lens at 21-inch e.f., (this is the lens in the present O configuration), but the off-axis resolution, color correction, transmission, and distortion of the Pacific Optical lens are all better than the J-241, and it has the added bonus of 15% longer focal length. With this lens in a two camera, convergent panoramic system it appears quite reasonable
25X1D to expect [redacted] while
maintaining the present wide coverage of the O system. We believe that
25X1D the [redacted] obtained with this configuration provides more
25X1D information than the [redacted] of the present I system even discounting the expected better resolution.

An additional goal of the proposal is to design a configuration that could stay current with state-of-the art techniques that are now on the horizon, e.g. use of different spectral zones and different emulsions, both black and white and color. The proposal will describe a means of obtaining high overlap mode of operation, when desired, that would provide coverage of each target on several successive frames. This turns out to be quite feasible with the lower V/H of the I vehicle and yet with very reasonable cycle times. Successive frames could, if desired, be exposed through different filters changed on a cyclic basis, thus covering points of interest in several different spectral regions. This technique could be amplified further by using color material in one camera and black and white with spectral filters in

the second. This overlap would be changeable in flight, from the programmer or at the pilot's discretion to go from normal coverage to redundant coverage.

It appears that sufficient material could be carried for perhaps seven hours or more of coverage with normal 54% overlap, or about four hours if the high overlap mode was used throughout the mission. We would anticipate that this high overlap would be used only on areas of interest so that total photographic coverage would not be appreciably less than normal.

Auto focus may not be needed in a cold vehicle and we might be able to eliminate this but we do propose to provide V/H control, stabilization and programmed exposure control.

25X1D
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25X1D

We also have a concept for a single camera which we believe would provide a ground resolution from the I vehicle of about [redacted] but this would require more development, would provide only [redacted] and could not be retrofitted to the 0 vehicle. We do not intend to propose on this unit unless there is intense interest in it.

Although we are proposing a 24-inch focal length camera as compared to the present 36-inch, the better lens and film to be used will result in obtaining a better than three times as much information per unit of ground area photographed with a single camera. The dual camera to be proposed providing, as it will, convergent stereo, the capability of multiple coverage obtained with high overlap, and the possibilities of spectral discrimination and color will further increase the potential acquisition of information and its usefulness to the Intelligence Community. In addition, the configurations can be retrofitted to the 0 vehicle.

E. L. G.

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